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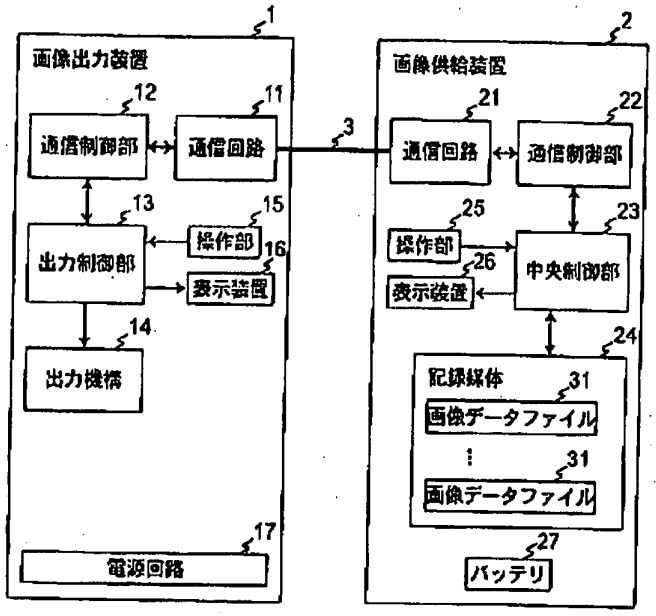
Fig. 1



1: image output device
2: image supply device
11: communicator
12: communication controller
13: output controller
14: output mechanism
15: control panel
16: display
17: power supply
21: communicator
22: communication controller
23: central controller
24: storage medium
25: control panel
26: display
27: battery
31: image data file

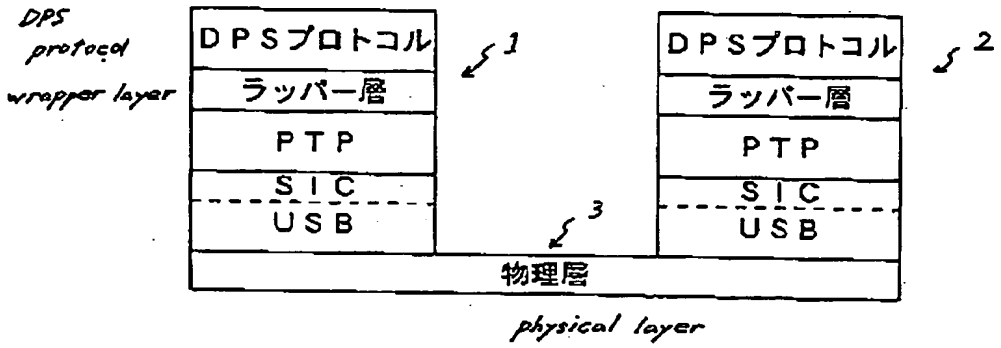

DPS protocol wrapper layer
DPSプロトコル
ラッパー層
PTP
SIC
USB
1
DPSプロトコル
ラッパー層
PTP
SIC
USB
2
3
物理層
physical layer

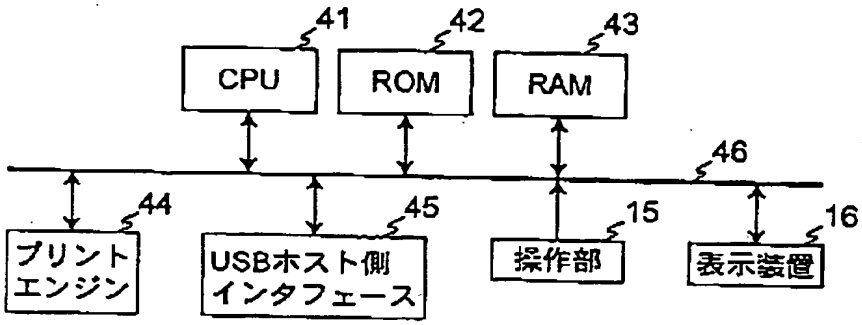
Fig. 2

Fig. 3

XMLコマンド リスト
DPS_DiscoverService
DPS_Configure
DPS_GetCapability
DPS_GetJobStatus
DPS_GetDeviceStatus
DPS_GetObjectID
DPS_GetFileInfo
DPS_GetFile
DPS_GetPartialFile
DPS_GetFileList
DPS_GetThumb
DPS_StartJob
DPS_AbortJob
DPS_ContinueJob

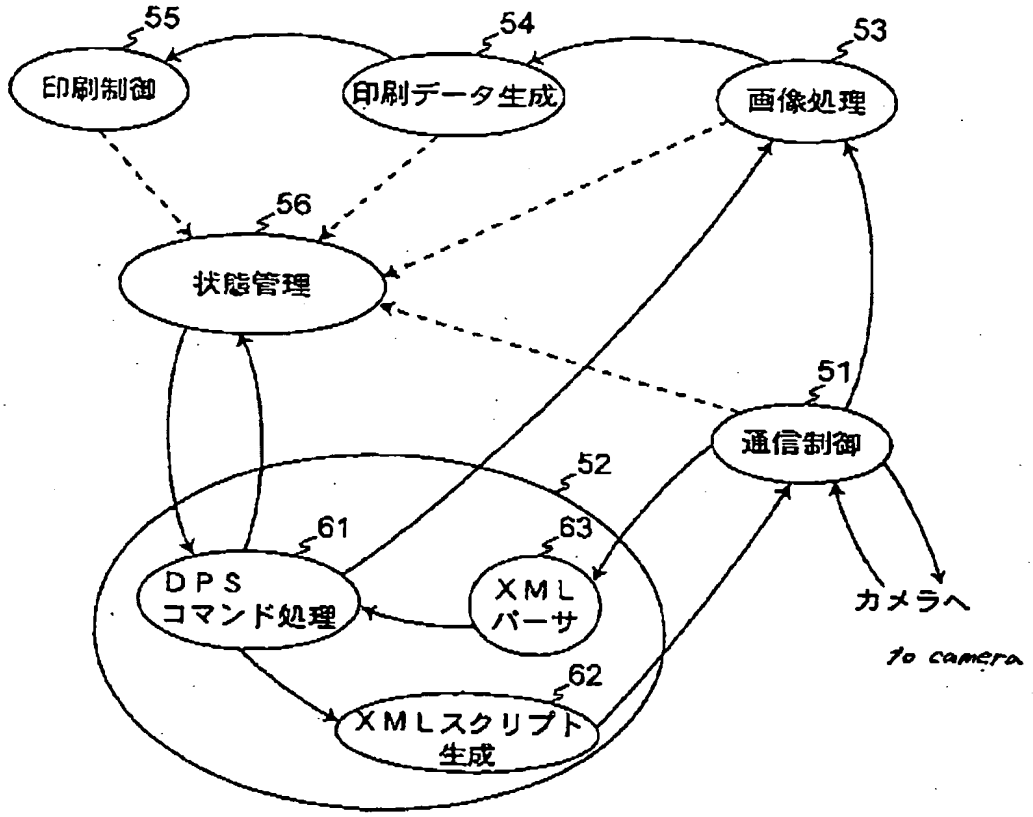
XML command list

Fig. 4



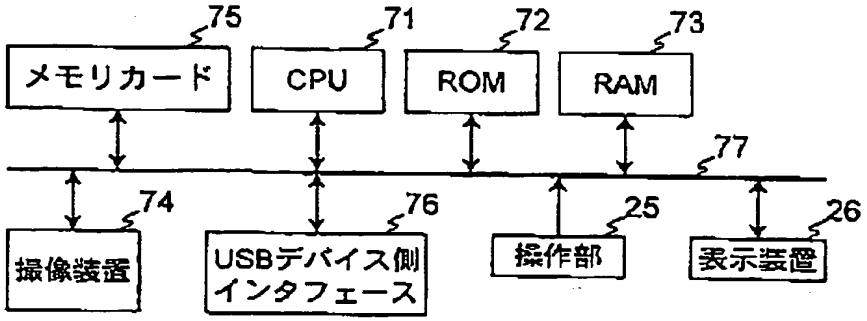
15: control panel
16: display
44: print engine
45: USB host interface

Fig. 5



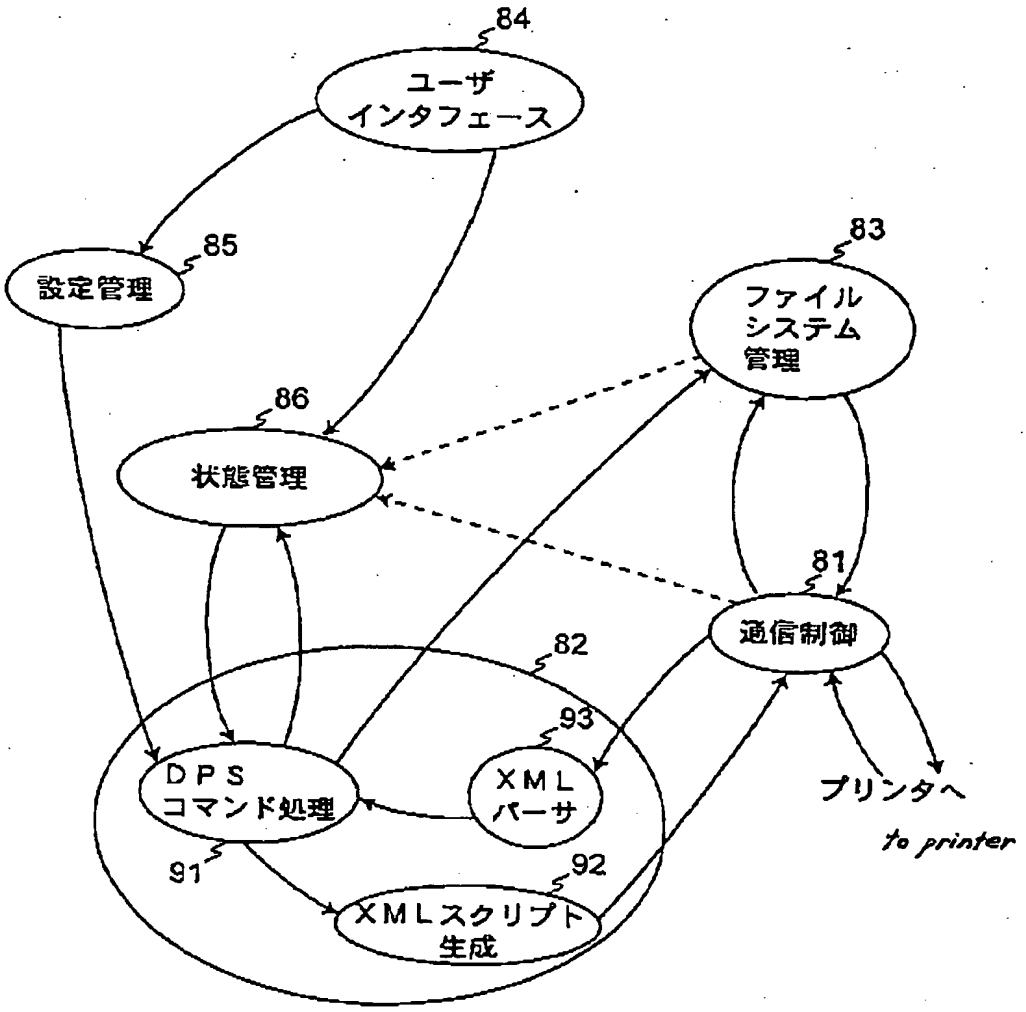
51: communication control
52: DPS protocol processing
53: image processing
54: image data generation
55: print control
56: status management
61: DPS command processing
62: XML script generation
63: XML parser

Fig. 6

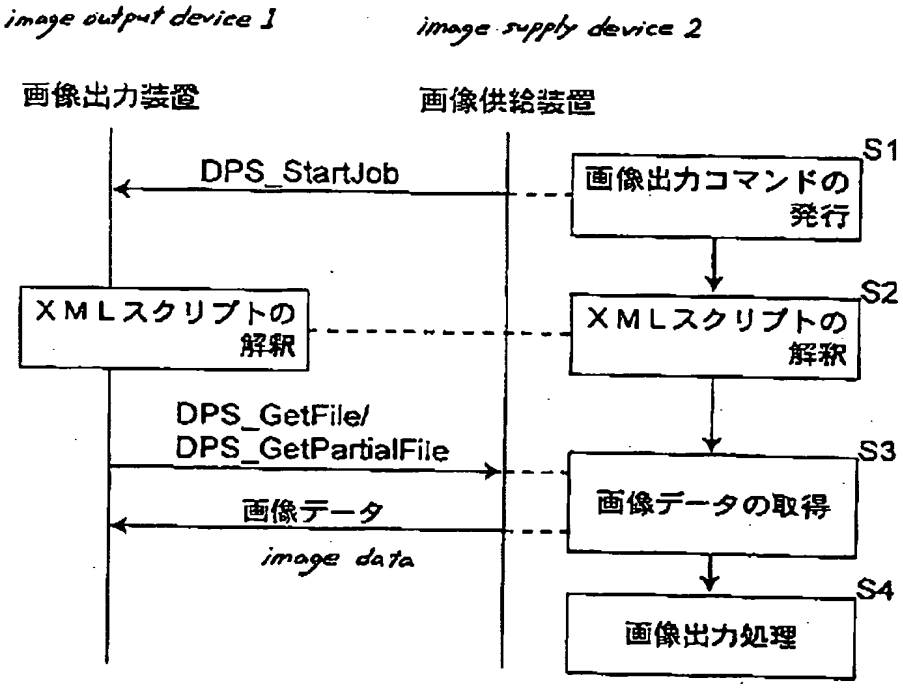


25: control panel
26: display
74: imaging device
75: memory card
76: USB device interface

Fig. 7



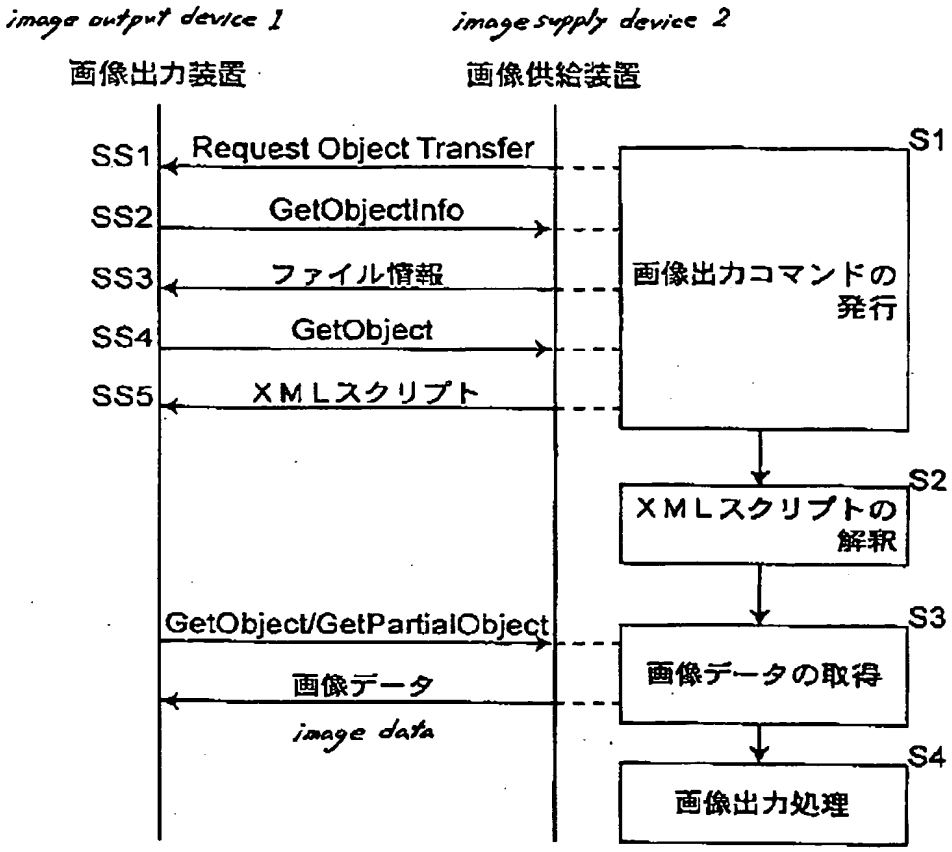
81: communication control
82: DPS protocol processing
83: file system management
84: user interface
85: setting management
86: status management
91: DPS command processing
92: XML script generation
93: XML parser



S1: transmit image output command
S2: interpret XML script
S3: acquire image data
S4: image output processing

Fig. 8

Fig. 9



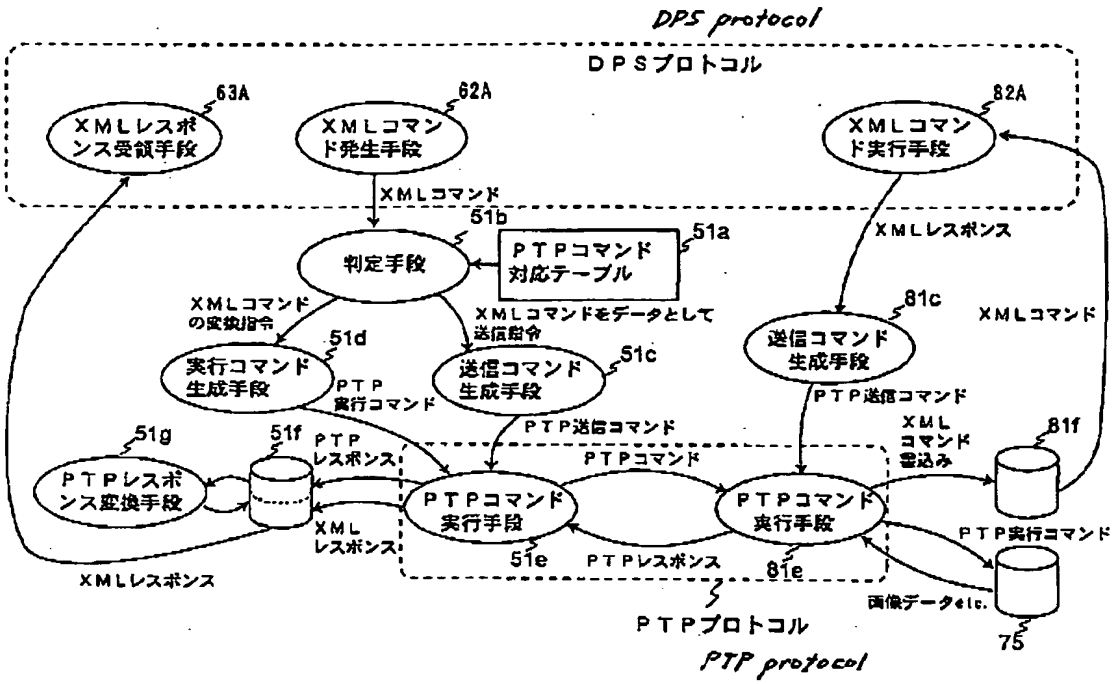
S1: transmit image output command
S2: interpret XML script
S3: acquire image data
S4: image output processing
SS3: file information
SS5: XML script

Fig. 10

```
<?xml version="1.0"?>
<dps xmlns="http://www.xxxx">
 <startJobRequest>
  <job>
   <jobConfig>
    <quality>01000000</quality>
    <paperSize>02010000</paperSize>
    <paperType>03020000</paperType>
    <fileType>04150000</fileType>
    <date>05010000</date>
    <fileName>06000000</fileName>
    <imageOptimize>07000000</imageOptimize>
    <layoutItem>08010000</layoutItem>
   </jobConfig>
   <printInfo>
    <image>
     <imageID>00000001</imageID>
     <imageDate>2002/05/30</imageDate>
    </image>
   </printInfo>
  </job>
 </startJobRequest>
</dps>
```

Fig. 11

```
<?xml version="1.0"?>
<dps xmlns="http://www.xxxx">
 <getFileRequest>
  <fileID>00000001</fileID>
  <buffPtr>00100000</buffPtr>
 </getFileRequest>
</dps>
```

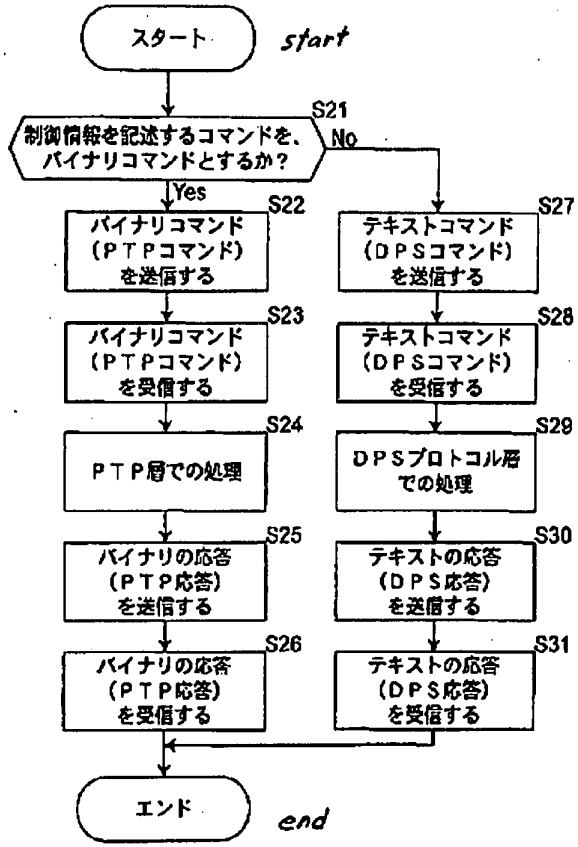


63A: XML response receiver
62A: XML command generator
62A to 51b: XML command
51a: PTP command reference table
51b: determinant
51b to 51c: XML command transmission
51b to 51d: XML command conversion
51d: execution command generator
51c to 51e: PTP transmission command
51d to 51e: PTP execution command
51e: PTP command executor
51e to 51f: PTP response, XML response
51g: PTP response converter
51f to 63A: XML response

82A: XML command executor
82A to 81c: XML response
81c: transmission command generator
81c to 81e: PTP command executor
81e to 81f: XML command writing
81f to 82A: XML command
81e to 75: PTP execution command
75 to 81e: image data etc.
51e to 81e: PTP command
81e to 51e: PTP response

Fig. 12

Fig. 13



S21: binary command is used as command describing control information
S22: transmit binary command (PTP command)
S23: receive binary command (PTP command)
S24: processing at PTP layer
S25: transmit binary response (PTP response)
S26: receive binary response (PTP response)
S27: transmit text command (DPS command)
S28: receive text command (DPS command)
S29: processing at DPS layer
S30: transmit text response (DPS response)
S31: receive text response (DPS response)

```
<?xml version="1.0"?>
<dps xmlns="http://www.xxxx">
  <GetFileInfoRequest>
        <fileID>00000001</fileID>
  </GetFileInfoRequest>
</dps>
```

Fig. 14A

```
ptpObjectHandle  ←  mapID(fileID)

OperationCode: 0x1008
OperationParameter1: ptpObjectHandle
OperationParameter2: None
OperationParameter3: None
```

Fig. 14B

```
fileType  ←  オブジェクト情報データセットの
             ObjectFormatフィールド
fileSize  ←  オブジェクト情報データセットの
             ObjectCompressedSizeフィールド
```

Fig. 14C

```
<?xml version="1.0"?>
<dps xmlns="http://www.xxxx">
 <opResult>
       XX000000
 </opResult>
 <GetFileInfoResponse>
       <fileType>04000000</fileType>
       <fileSize>1048576</fileSize>
 </GetFileInfoResponse>
 </dps>
```

Fig. 14D

Fig. 14C

fileType ← ObjectFormat field of object information data set

fileSize ← ObjectCompressedSize field of object information data set

Fig. 15

object information data set

オブジェクト情報データセット	
StorageID	0001h
ObjectFormat	3002h
ProtectionStatus	0000h
ObjectCompresedSize	size of (input or output)
ThumbFormat	0000h
ThumbCompressedSize	00000000h
ThumbPixWidth	00000000h
ThumbPixHeight	00000000h
ImagePixWidth	00000000h
ImagePixHeight	00000000h
ImageBitDepth	00000000h
ParentObject	"IMAGE"
Association Type	0000h
Association Desc	00000000h
SequenceNumber	00000000h
Filename	001.JPG
CaptureDate	2003/01//01
ModificationDate	2003/01//01
Keywords	"TEST"

```
<?xml version="1.0"?>
<dps xmlns="http://www.xxxx">
  <GetFileRequest>
        <fileID>00000001</fileID>
        <buffPtr>00000001</buffPtr>
  </GetFileRequest>
</dps>
```

Fig. 16A

```
ptpObjectHandle ← mapID(fileID)
```

Fig. 16B

```
OperationCode: 0x1009
OperationParameter1: ptpObjectHandle
OperationParameter2: None
OperationParameter3: None
```

Fig. 16C

```
<?xml version="1.0"?>
<dps xmlns="http://www.xxxx">
 <opResult>
        XX000000
 </opResult>
 <GetFileResponse>
        <fileSize>1058576</fileSize>
 </GetFileResponse>
 </dps>
```

Fig. 16D

```
<?xml version="1.0"?>
<dps xmlns="http://www.xxxx">
  <GetFileListRequest>
        <fileType>04000000</fileType>
        <ParentObject>00000001</ParentObject>
  </GetFileListRequest>
</dps>
```

Fig. 17A

```
ObjectFormatCode ← ObjectFormatID(fileType)
```

Fig. 17B

Fig. 17C

```
OperationCode: 0x1007
OperationParameter1: StorageID
OperationParameter2: [ObjectFormatCode]
OperationParameter3: 子のオブジェクトのリストを要求する
                     フォルダ等のObjectHandle
```

Fig. 17D

```
<?xml version="1.0"?>
<dps xmlns="http://www.xxxx">
 <GetFileResponse>
        <imageIDs>00000001 00000002 00000003</imageIDs>
        <numIDs>3</numIDs>
 </GetFileResponse>
<opResult>
        XX000000
 </opResult>
 </dps>
```

Fig. 17C

OperationParameter3: ObjectHandle of folder etc. requesting child object list

Fig. 18A

（画像出力装置1　→ＸＭＬコマンド→　画像供給装置2）

- オブジェクト情報データセットのObjectCompressedSizeフィールド
  ← size of (XMLコマンド)
- → SendObjectInfo(オブジェクト情報データセット)
- ← Response
- → SendObject(XMLコマンド)
- ← Response

Fig. 18B

（画像出力装置1　←ＸＭＬレスポンス←　画像供給装置2）

- オブジェクト情報データセットのObjectCompressedSizeフィールド
  ← size of (XMLレスポンス)
- ← RequestObjectTransfer(ObjectHandle)
- → GetObjectInfo(ObjectHandle)
- ← オブジェクト情報データセット
- → GetObject(ObjectHandle)
- ← XMLレスポンス

Fig. 18A (image output device 1 → XML command → image supply device 2)

ObjectCompressedSize field of object information data set ← size of (XML command)
→ SendObjectInfo (object information data set)
← Response
→ SendObject (XML command)
← Response

Fig. 18B (image output device 1 ← XML command ← image supply device 2)

ObjectCompressedSize field of object information data set ← size of (XML response)
← RequestObjectTransfer (ObjectHandle)
→ GetObjectInfo (ObjectHandle)
← object information data set
→ GetObject (ObjectHandle)
← XML response

Fig. 19A

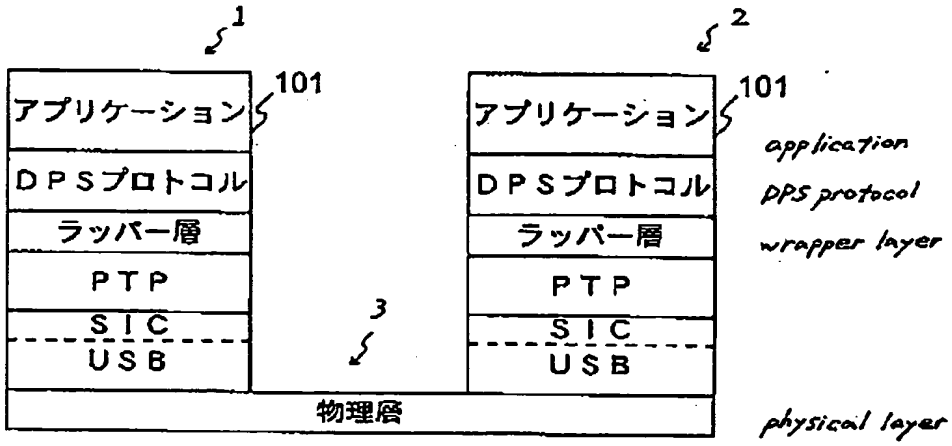
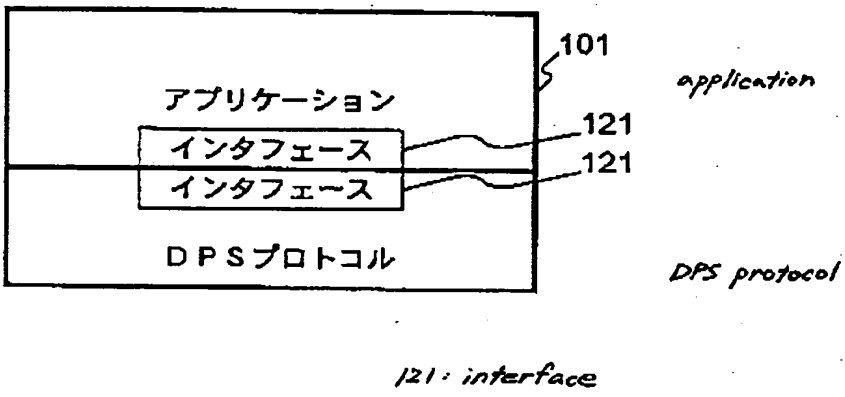
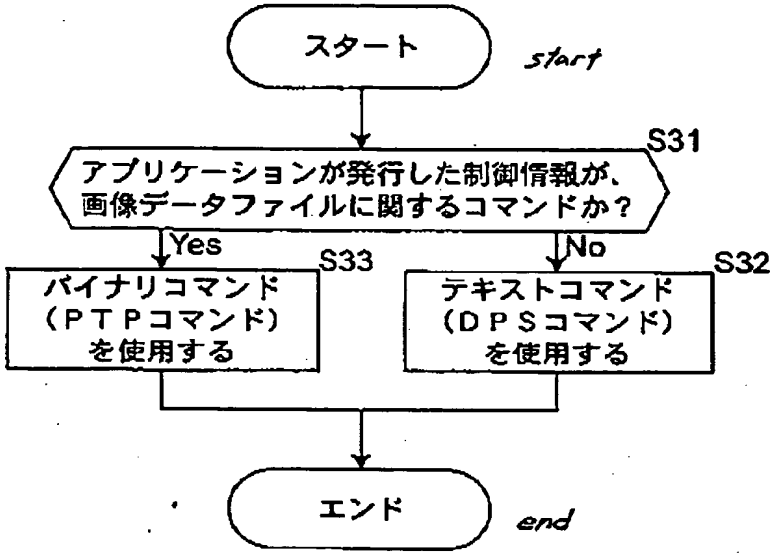


Fig. 19B



121: interface

Fig. 20



S31: control information issued by application is command related to image data file?

S32: use text command (DPS command)

S33: use binary command (PTP command)